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THE FOCAL SPOT

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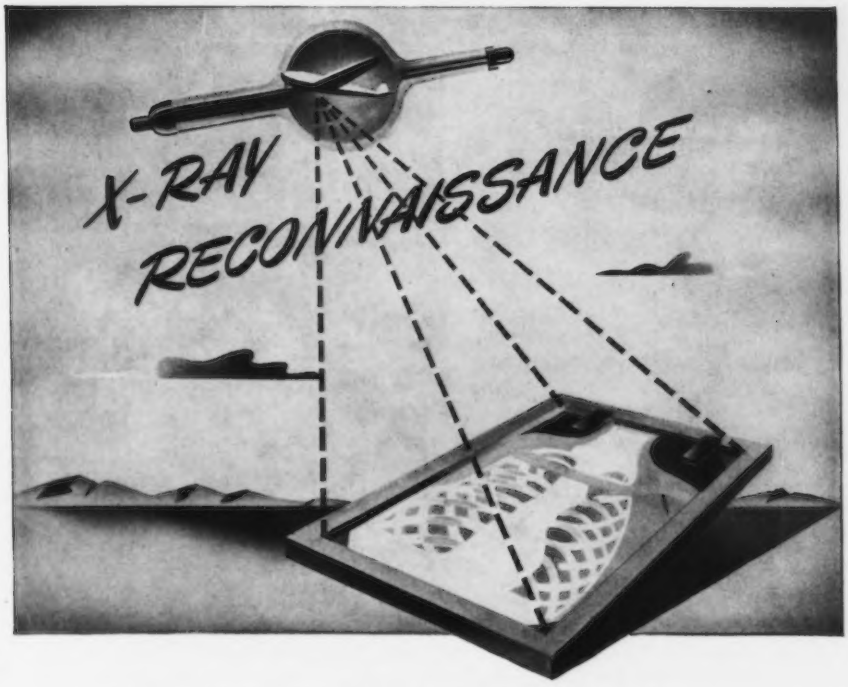

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Come one, come all!

TIMELY TIPS ON HANDLING FILM

Developing Procedure

● An x-ray film may be correctly exposed but unless proper developing procedure follows, the ultimate in radiographic quality will not be obtained. To produce the "perfect" radiograph requires the utmost care in all phases of technical procedure of which darkroom processing is the most important.

1. The developer should be stirred frequently—especially when the solution has been standing unused for any length of time. This provides uniform temperature and even distribution of the chemical contents throughout the tank.

2. Hangers should be immersed as rapidly and as smoothly as possible. Be careful, if hangers of different sizes are used together, to keep them separated to avoid scratched films.

3. Here in Binghamton, we agitate films for several seconds every 30 seconds to eliminate air bells and to secure uniform over-all action of developer. (Agitated and non-agitated films can differ as much as 100% in higher densities!)

DEVELOPMENT
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1-Gallon Tank Developing Time
The first 50 films 3 min.
The Next 50 films 3½ min.
The Next 50 films 4 min.
The Next 50 films 4½ min.

4. Replace or replenish developing solutions as recommended by the manufacturer. It's poor economy to save on relatively inexpensive developing solutions by using them when exhausted. Doing this invites processing defects and spoilage of film.

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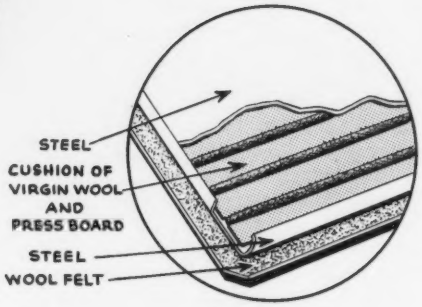

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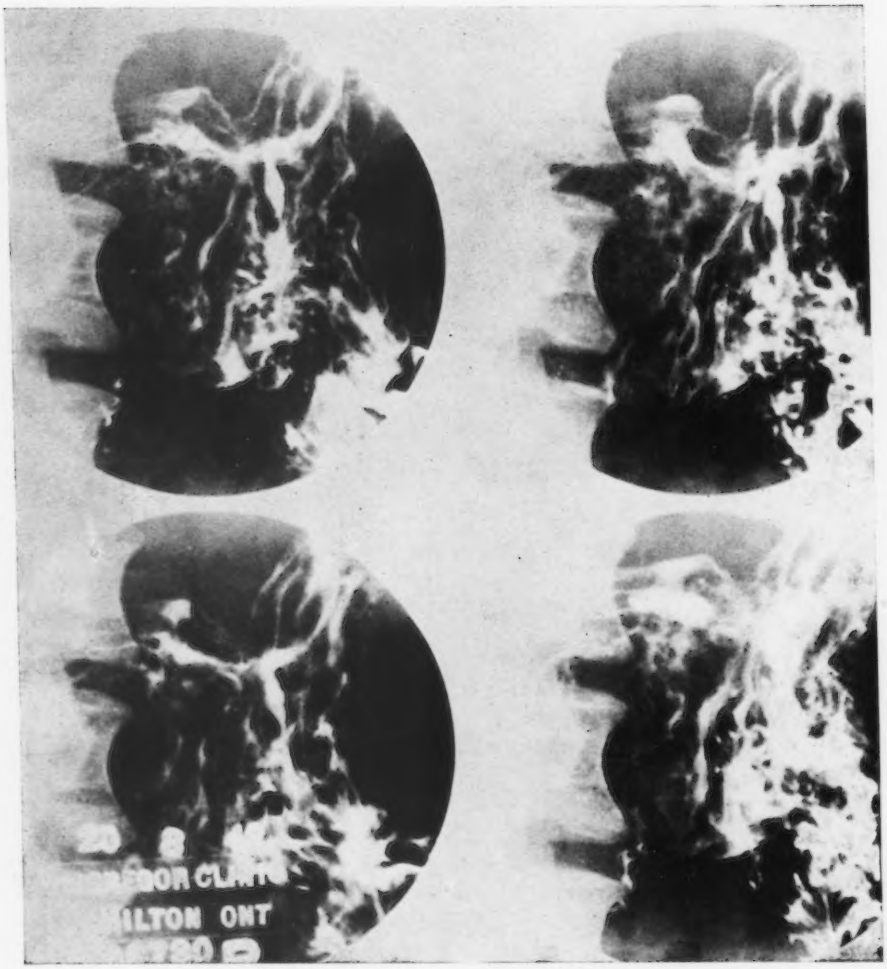
EDITORIAL

The comments which have reached us regarding the first issue of our journal have been very gratifying. We seem to have succeeded in making a favourable first impression. For this thanks are due to the Provincial Sub-Editors and the contributors who sent them material.

It is evident that The Focal Spot can be a valuable link between technicians in all parts of Canada and beyond. Moreover, with continued and energetic support from all members who are able to contribute articles, it can render a valuable service in helping to improve x-ray technique across the Dominion.

However, we also have the financial angle; less inspiring than the technical but potent enough to render our best efforts abortive if not taken into consideration. Here we have to rely on members paying their Provincial Society dues promptly; on the support of the advertisers, whose co-operation is so essential and so greatly appreciated, and on the very welcome support of the radiologists, a number of whom have already sent in subscriptions.

So we earnestly appeal to all members. Support your magazine in three ways: By sending in material for publication, by paying your dues promptly and by letting us know if you think you know of a possible advertiser.



STUDY OF MUCOSAL PATTERN OF STOMACH

Radiography of the Gastro-Intestinal Tract

By MARY F. CAMERON,
McGregor Clinic, Hamilton, Ont.

It has been the prediction of Dr. Chamberlain of Temple University, Philadelphia, both in speech and writing that fluoroscopy will eventually become the radiology of the future.

Through the impetus given research by investigations conducted for military purposes, the study of night blindness has provided valuable information regarding the possibilities of fluoroscopic examination.

Dr. Chamberlain has found that if eyes are to see all possible in the darkness, the ideal period for accommodation should be twenty-three hours.

By applying the principles of the electromicroscope to the fluoroscope, and adding adequate eye accommodation, images become as distinct under the fluoroscope as in their normal appearance on X-ray films.

This is still in the world of the future though in gastro-intestinal radiography, great stress is placed upon the value of the fluoroscope, and diagnostic reports are most frequently given through information gained by the radiologist at the fluoroscopic examination.

In the practice of X-ray technical work, however, the technician soon realizes that the radiologist desires in each case to corroborate his fluoroscopic findings by actual visualization of any pathological condition in X-ray films, also that radiologists have been known to change an earlier opinion upon viewing such films.

The fluoroscopic examination must be made by a radiologist, and in some instances he may prefer to make his own radiographs, but it is customary in most X-ray laboratories for the technician to make films following the use of the fluoroscope.

Even in the fluoroscopic examination however, the technician has a part to play in that it is his responsibility to see that the patient is prepared, the X-ray equipment in order, the opaque meal in readiness and to administer the meal in accordance with the radiologist's instructions.

No portion of the alimentary tract can be seen radiographically unless filled with an opaque medium, or injected with air. The opaque medium most frequently used is chemically pure barium sulphate mixed with a palatable, not too thick suspension medium.

Care must be taken in purchasing this material, as ordinary commercial barium sulphate contains barium sulphite and barium sulphide, which produce soluble barium salts that are poisonous to the human system. This material should be purchased in sealed containers marked "For X-ray use only."

Use of one of the prepared forms of radio-opaque meals as sold by X-ray film manufacturers under such trade names as Basolac, Bari-O-Meal, will insure uniformity of the mixture and greatly simplify preparation.

Examination of the complete gastro-intestinal tract is considered most desirable as a routine procedure, but as the radiographic examination varies greatly for each portion, the technician

should be familiar with the anatomy, physiology and technique applicable to each part.

The Oesophagus

The oesophagus is a muscular tube, extending from the lower border of the cricoid cartilage, at the level of the 6th cervical vertebra to the cardiac orifice of the stomach, which is at the level of the eleventh thoracic vertebra. The oesophagus pierces the diaphragm at the level of the 10th thoracic vertebra. It is situated in front of the spinal column, and behind the trachea, aorta and heart.

Physiology

Both fluids and foods pass through the oesophagus to the stomach by means of peristaltic waves. In six seconds, the peristaltic wave passes through the oesophagus to the stomach, but fluids are carried through much more rapidly.

Preparation

As retained food particles may cause irregularities in the contour of the oesophagus, it is advisable to request the patient to take no food for six hours previous to X--ray examination.

Opaque Medium

One glass of thin, and a second of thick barium mixture should be prepared. The latter should have the consistency of thick paste, and may be mixed with mucilage of acacia if desired.

Examination

Examination is made first under the fluoroscope while the patient is swallowing the barium mixture.

The patient stands erect, in a right anterior oblique position, and is rotated till the path of the oesophagus between the spine behind, and the heart shadow in front is clearly visible.

A few mouthfuls of thin barium are given first, in order to wash down any food particles which may have been retained, if the patient has been poorly prepared. One tablespoonful of thick barium is then administered, the patient being instructed when to swallow, and its progress throughout the oesophagus is observed under the fluoroscope by the radiologist. If delay is noted in the passage of the meal, spot films are made of this area.

During the fluoroscopic examination, the technician has an opportunity to study the amount of rotation of the patient which will be necessary in making radiographs.

Radiographic Technique

Prone and erect views are usually taken. In both instances,, the angle of obliquity as used under the fluoroscope is repeated in order to separate the shadows of the various structures in the mediastinum.

In the prone position, the right arm is placed beside the body, the head turned to the left, the left arm flexed, the hand resting on a pillow beside the head. The left knee also is flexed and supported by a sandbag.

In the erect position, the patient stands facing the cassette, rotated obliquely, so that the right side is closest to the film. The right arm is stretched upward, the hand grasping the side of the table, the left arm is flexed, with hand resting on the head.

A 14"x17" film is used, the upper margin placed above the level of the

6th cervical vertebra, to include the upper end of the oesophagus, the lower border reaching the level of the 11th thoracic vertebra. As the midpoint is about level with the angle of the sternum in front, and cartilage between the 4th and 5th thoracic vertebrae behind, the central ray should enter just anterior to these two vertebrae.

Wright and Freeman have found that barium swallowed at the end of full inspiration passes leisurely down the oesophagus, while it passes rapidly if swallowed during the middle of respiratory expansion. At the end of forced expiration, it is delayed in the lower oesophagus several seconds, causing dilation of the lower portion. It is therefore recommended that the patient should hold his breath at the end of full expiration, then take two or three swallows of thick barium, under which circumstances it will be retained longer in the oesophagus while the radiograph is being made.

Special Procedures

Excellent visualization of the whole length of the oesophagus can be obtained by placing the patient in the prone position, with the chest 12" lower than the feet. Barium is mixed just thin enough to pass through a feeding tube, and administered by this means to the mouth, thus causing it to pass through the oesophagus against gravity. Should the barium pass too slowly, a swallow of thin mixture will hasten its progress.

The Upper Portion

Diverticulae usually occur in the upper portion of the oesophagus, and in the event of such a diagnosis being made, the radiologist may request lateral films of this area.

The patient should be placed in a true lateral position, and fluoroscoped to accurately localize the desired region. Films should be made during the process of swallowing barium, also a few moments afterward to demonstrate any residue. If this is done by means of the spot film device, the cassette can be quickly and accurately positioned over the suspected area, and the exposures quickly made.

Oblique films made in the Trendelenberg Position will also prove of value in the detection of barium-filled pockets. These films should be centered above the jugular notch.

The Lower Portion

Malignant growths most commonly occur in the lower portion of the oesophagus. For investigation of this area, the films should be centered beneath the sterno-ziphoid junction.

Cardiospasm

In cases of cardiospasm, films may be made in the customary position used for oesophagus, with the patient prone, but as peristalsis is sometimes reversed, it is also advisable to take radiographs in the supine position.

The Stomach

The stomach is situated between the oesophagus and the small intestine, lying chiefly in the left abdomen. Anatomically, its principal landmarks are: the cardiac orifice into which the oesophagus opens, the pyloric orifice through which the stomach opens into the small intestine, the fundus, and the greater (medial) and lesser (lateral) curvatures.

The fundus of the stomach lies above the level of the cardiac orifice, close to the ribs, and from the fundus, the body and pyloric portions extend down, then across the midline to the pyloric orifice, which is situated upwards and to the right of the spine, above which the stomach opens into the duodenum.

As in all abdominal structures, the position of the stomach will vary greatly with the habitus of the individual.

Average

The greater curvature will lie just above the iliac crests.

Hypersthenic

The fundus will probably be situated well up under the arch of the left diaphragm, the pars media extending down obliquely, then to the right above the umbilicus. In this type, the tonus is usually good, the peristalsis active, and therefore emptying is rapid.

Asthenic

In this type, the abdominal cavity is shallow with the greatest portion of it in the pelvis. The stomach is fishhook in shape, is well down in the pelvis, tonus is poor, and the emptying process will be very slow.

Hyposthenic

This type is similar to the asthenic, but has less marked characteristics. In this type, the greater curvature usually falls some 2" below the interiliac line.

Physiology

Peristalsis continues to carry food through the stomach to the duodenum, the waves growing deeper towards the pylorus.

Preparation

The patient should be requested to take no bismuth preparation for two days previous to X-ray examination, and to fast both as regards solid foods and fluids for at least six hours before examination.

Opaque Medium

Choice of the amount of barium sulphate or packaged meal used will vary according to the weight of the patient and wish of the radiologist.

Four to sixteen ounces are commonly used, flavoured with one or two ounces of chocolate Vi-tone or Toddy. This should be mixed very thoroughly in order that no small lumps may be present to produce artificial filling defects, or prevent the filling of an ulcer crater.

Single and Double Meals

In "Single Meal" technique, the patient is screened and the stomach examined when the meal is first administered, and returns for follow up films.

In "Double Meal" technique, a 16 oz. meal is given, and the patient returns in six hours, at which time a 14"x17" film is taken,, then further barium is given and the stomach screened.

Fluoroscopic Examination

The fluoroscopic examination is made by the radiologist during which complete observation of the stomach function will provide him with information necessary to diagnose pathological conditions which may be present, while the technician may study the various positions necessary to demonstrate such conditions in future radiographs.

In determining the presence of organic disease, the doctor will wish to

study the mucosa which, when the stomach is empty, lies in a certain arrangement of folds called rugae.

Two swallows of the opaque meal or "Rugar" are given, this being manipulated by the doctor while examining the mucosal pattern and duodenal cap.

In the study of the mucosal pattern and duonenal cap, the value of the spot film device cannot be over-estimated.

Through peristalsis, the shape of the stomach changes, and the duodenum fills and empties, causing irregularities in the contour which may be taken for pathological lesions. Enabled by the use of the spot film device to make four exposures in rapid succession, any recurrence of filling defects in the same place may be proved or disproved.

Compression is applied in order to show mucosal relief or the presence of an ulcer niche.

It is also of importance to corroborate the presence of such lesions in further radiographs made in various positions.

For fluoroscopic examination of the fundus and cardiac portion of the stomach, the radiologist may wish to fluoroscope, also, to have radiographs made lying supine, in the Trendelenberg position. The patient may be requested to turn into right and left lateral then the prone positions, and finally be returned to the supine, in order to distribute the barium meal through the fundus.

Radiographic Procedure

At the conclusion of the fluoroscopic examination, it is customary to make radiographs in the prone and oblique positions, while in cases of extreme ptosis, the radiologist may request additional films made with the patient erect.

In the prone position, pressure of the spine upon the stomach may produce artificial filling defects. This may be avoided by placing stiff 8" bolsters under the chest and pelvis, thereby permitting the stomach to hang free.

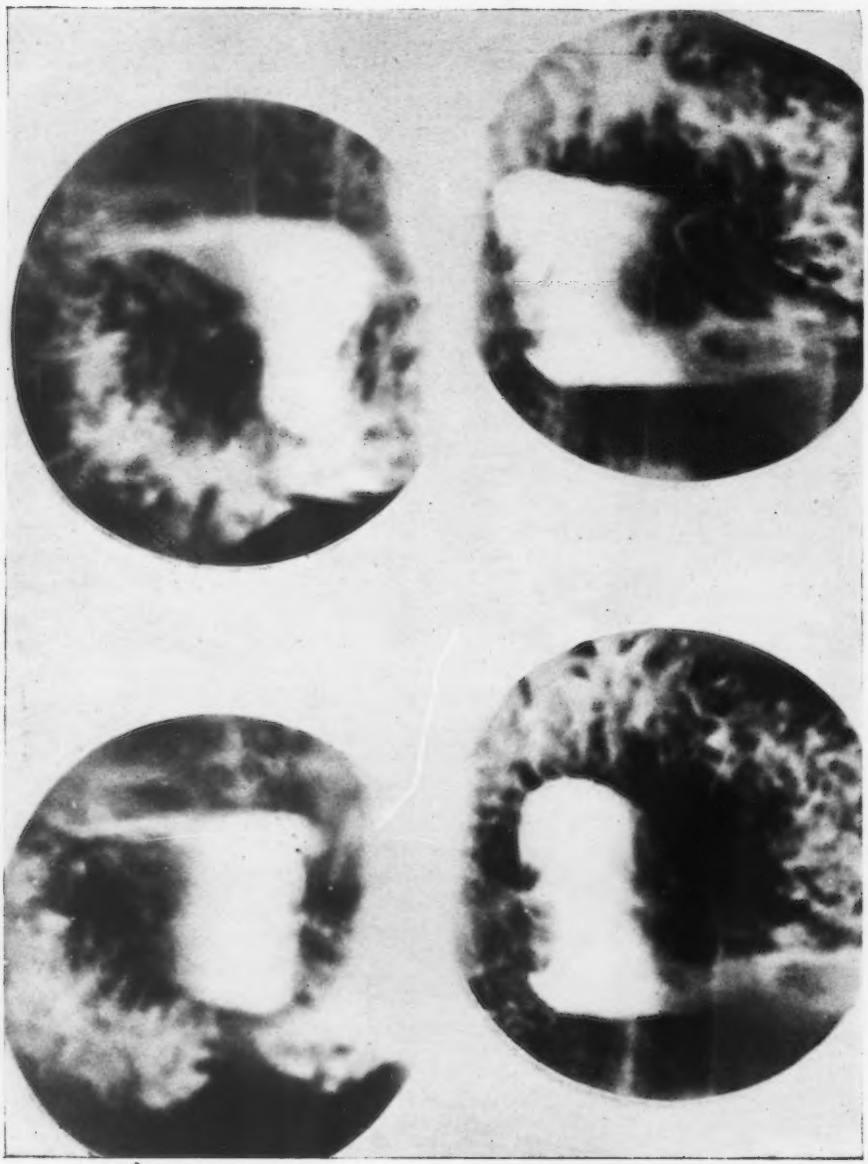
With the aid of the fluoroscope, and by placing on the table a lead diaphragm in which a circle 9½" in diameter has been cut to lie directly in the centre of the table top, there need be no confusion as to the position of the stomach in patients of different types of habitus.

The stomach is fluoroscoped to lie within the area of the circle, the tube and bucky-diaphragm are centred with the circle, and an 8"x10" film, (10"x12" in the asthenic type) is placed in the bucky tray and the exposure is made.

Following the use of the prone position, the patient is placed obliquely, with the right side closest to the film, the right arm beside the body, the head turned to the left, and left arm flexed with hand beside the head, the left knee flexed and supported by a sandbag.

In this position, rotation of the patient will obviate the necessity of the use of bolsters. The degree of rotation will vary, but can be determined under fluoroscope, the stomach being screened into position over the circle in the lead diaphragm just as in the prone position. Gastric ulcers are most commonly found on the posterior wall near the lesser curvature, and can best be demonstrated in this position as the posterior wall is thrown into profile.

This position will also best demonstrate the descending portion of the duodenum, throwing it free of the duodenal cap and pre-pyloric portion.



SECTIONAL FILMS OF DUODENUM.

During a recent gastric examination, the Radiologist noted a large pouch projecting from the posterior surface of the upper portion of the stomach. Radiographs were made in various positions, but only from those made with the patient rotated obliquely to an 80° angle, and the table tilted 45° towards the feet, was the Radiologist able to diagnose a very large gastric ulcer.

Additional films made in a true lateral position are of value in demonstrating these areas.

The duodenum

Spot films of the duodenum made in quick succession and from various angles during the fluoroscopic examination are of primary value, but if the department is not equipped with such a device, serial films of the duodenum, four exposures on a 10x12 film will assist in verification of fluoroscopic findings.

With the use of this method, the duodenum is centred by fluoroscope over a circle, 5″x5″, which has been cut in a lead diaphragm to lie directly in the centre of the tabletop. The patient lies in the oblique position in order to demonstrate the duodenal cap and descending portion of the duodenum.

A 10″x12″ film is centred in the bucky tray. The lock is released and the film drawn 2½″ towards the operator. The lock is then tightened and a line drawn with lead pencil on the tray, at the proximal border of the rack which holds the film. When the film is drawn forward to the top of the bucky tray, the lower posterior quarter will lie in the centre, and the first exposure may be made. The film is then drawn down to the lower border of the tray and a second radiograph made in the upper posterior quarter. The cassette then is pushed back to the posterior rack, and exposures made in the anterior quarters of the film. All exposures are made with a dental cone, and the centre of the aperture in the lead should be centred with the bucky diaphragm.

Diaphragmatic Hernia

Speed of exposure is essential in demonstrating a diapragmatic hernia, as the opaque medium must be depicted in the area of the cardiac orifice at which the stomach herniated through the diaphragm.

The patient is placed in an oblique position, with right arm beside the body, the head turned to the left, and the left knee flexed, supported by a sandbag.

In the left hand the patient holds a glass of barium, and at the instruction of the operator drinks two or three mouthfuls of the opaque medium through a glass feeding tube. The patient is then requested to "stop drinking and stop breathing," and exposure is instantly made.

Upon completion of the gastric examination, the patient is instructed to take no food, and as little fluid as possible until the progress of the barium meal has been noted both by fluoroscope and in films in six hours. At this time, the radiologist fluoroscopes the patient to determine the presence of any retention in the stomach, position of the appendix, possible fixation of the caecum, and any tenderness or muscular rigidity which may be present. A 14″x17″ film is made to show the emptying time of the stomach, and position of the meal in the small intestine. If

the barium meal is proceeding slowly, it is customary to make films at 10, 24 and 48 hours following gastric examination.

The Small Intestine

The small intestine is from 20-22 feet long, has a diameter of 1-2 inches, and extends from the pyloric orifice to the caecum, or first part of the large intestine, where the ileo-caecal valve is situated.

The small intestine is composed of three parts:

(1)—The duodenum—12" long.
(2)—The jejunum—8' long.
(3)—The ileum—12' long.

At the junction of the pyloric orifice and the first portion of the duodenum, a cone-like cap is formed, which is really the first portion of the duodenum and is termed the duodenal cap. This cap is situated to the right of the midline, and its position in various individuals may be at the 1st, 2nd or 3rd lumbar vertebrae.

From the duodenal cap, the second portion of the duodenum passes backward and turns downward on the right of the mid lumbar region to the level of the 4th lumbar vertebra, then crosses to the left of the abdomen, again passing upwards to the level of the 2nd lumbar vertebra, where it joins the jejunum at the duodeno-jejunal flexure behind the stomach. In various types, the descending duodenum may lie entirely behind the stomach, therefore rotation of the patient may be necessary in order to demonstrate it.

From the duodeno-jejunal flexure, coils of small bowel extend down and in the left side of the abdomen, possibly as low as the lesser pelvis. The jejunum is situated chiefly in the left upper quadrant, the ileum then extending in coils down and across the abdomen, into the pelvis, to terminate at the junction of the ileum and caecum at the ileo-caecal valve in the right lower quadrant. Movement of the contents of the small bowel is rapid, and as it is dimensionally small, the opaque medium passes through so quickly that it is difficult to outline all portions satisfactorily.

In the choice of a form of examination which will demonstrate the small intestine by use of a motor meal, the following two methods have proved successful:

The "Fractional Method" as described by Clark in which a large mouthful of the opaque meal is administered every ten to fifteen minutes, the progress of the medium being observed on the screen, distribution being aided by palpation. Films are made every half hour until the whole tract from the duodenum to the ileo-caecal valve has been shown. If flooding occurs in the distal coils of the ileum, an opaque enema is given, under raised pressure.

The second method as described by Morse and Cole, and quoted by Dr. Rhinehart is as follows:

A thick meal is mixed, composed of eight ounces (weight) of Barium Sulphate with five ounces of water, making a paste of about seven ounces in volume. After administration, one 11"x14" film is made, then a 14"x17" film is made every thirty minutes for the second hour, then one every hour until the small bowel is emptied.

Either of these methods will demonstrate the arrangement of the coils of the small intestine. Films are made

in the prone position, with the part to be radiographed nearest the film.

Ileo-caecal Valve and Appendix

At six hours after the ingestion of a barium meal, it is normally found in the terminal ileum, caecum and ascending colon, up to the hepatic flexure. This progress depends upon the thickness of the mixture, the time at which the stomach empties, the tone of the small bowel, and the possible presence of inflammatory adhesions. The position of the appendix varies, but is usually found on the lower left side of the caecum.

If radiographs are made in the prone position, the caecum will usually be found out of the pelvis, in the right iliac fossa.

If at fluoroscopic examination the situation of the appendix is found to be retrocaecal, films should be made supine, with the patient rotated obliquely. A 10″x12″ film is adequate, the central ray being directed just below the highest portion of the iliac crest.

Large Intestine

The large intestine is approximately 5 feet long, and 1¼-3 inches in diameter.

The caecum is situated in the right iliac fossa, extending 2¼″ below the ileo-caecal valve, and from it the appendix projects posteriorly. The caecum extends into the ascending colon above the level of the ileo-caecal valve, passing upward to the under surface of the liver, where at the junction of the transverse colon, it bends to form the hepatic flexure.

The transverse colon passes across and upward from the right to the left side of the abdomen to the under surface of the diaphragm where another bend is formed, the splenic flexure. This is not always as high as the spleen itself, but is usually higher than the hepatic flexure, approximately at the level of the 10th or 11th ribs, posteriorly. From this point, the colon passes down on the left side of the abdomen, to just below the brim of the pelvis, where it then becomes the sigmoid, which is composed of two loops of bowel on the left side. The first loop passes the midline, then bends backward to form the second loop, which finally enters the rectum at the midline of the pelvic cavity, terminating at the anal canal which joins the rectum to the anus, the external orifice of the alimentary tract.

The position of the large intestine will vary greatly with the habitus of the individual.

Hypersthenic

In this type, the large intestine is short and high, the caecum is out of the iliac basin, with the transverse colon well above the umbilicus. The descending colon is long and straight.

Asthenic

In this type, the colon is longer and very low, the caecum in the small pelvis and quite large. The transverse colon descends into the pelvis, the hepatic flexure being at the right iliac crest, the splenic flexure not as high as the spleen.

Examination

Preparation:

1½ ozs. of castor oil taken the night before examination will prove most effective, if not contraindicated by the physician.

If contraindicated, cleansing enemas may be given the night before, and no supper taken, provided examination is to be in the morning.

If made in the afternoon, cleansing enemas should be given three to four hours before examination, a preliminary film being made to ascertain whether preparation has been sufficient.

A brief explanation of the procedure to be followed will promote re-assurance of the patient, and ensure co-operation.

Barium Enema

In preparation of the enema, great care should be taken that the fluid is of the right consistency and temperature. The proper quantity should be available, thoroughly mixed so as to be free from lumps.

The enema container holding about three pints should be of glass in order to observe progress. It should be hung on an enema stand which may be adjusted at various heights. Five to six feet of rubber tubing should be used, with a control clip. A glass connector inserted in this tubing will permit observation of the flow of barium. A large size enema tip is used. Eight ounces of barium combined with three pints of water is mixed in an electric mixer, then strained through gauze, and in some instances mucilage of acacia is added. Fluid should be run through the tube to ensure the removal of air.

The patient is turned laterally, the tip which has been coated with vaseline is then carefully inserted into the rectum. The clip is then released, and the enema permitted to flow in slowly, the tube being partially pinched off as it progresses.

As the rectal ampulla fills, there will be some discomfort, but if the flow is stopped for a moment, the enema will continue its passage into the pelvic colon, relieving discomfort. It will then pass rapidly to the splenic flexure, then anteriorly across the vertebral column to the hepatic flexure, where there will again be delay. If the enema is slow in moving around the colon, turning the patient first to the left side and later when it reaches the splenic flexure, to the right will assist the flow.

Special Procedure

It will be well to ascertain whether the patient has difficulty ordinarily in retaining an enema. If so, tragedy can be avoided by the use of a Bardex Catheter, which will prevent expulsion of the enema during examinaiton.

This consists of a rubber tube, 12" long, with pressure clip attached. The distal end of this tube is forked, the wider portion attached to the enema tube, while the narrower portion is clamped with a Kocher Clamp.

At the proximal end of the rubber tube, a soft rubber bulb is situated in the tip of which there are two openings for barium to pass through. The soft rubber of this bulb is folded tightly, and held by a short elastic band. This portion is inserted through the anus, and when it reaches the rectum, the Kocher Clamp is removed, and air injected by means of a syringe. The Kocher Clamp is then tightened again. This air inflates the bulb in the rectum, the elastic band releases itself, and all entrance is completely blocked off, except for the barium enema which passes through the tube. This bulb is held in

the rectum until the patient is asked to expel the enema, the clamp is then removed, the bulb deflates and is easily drawn away.

The fluoroscopic examination proceeds as the enema is administered and the spot film device is again of value in making radiographs of any obstructive lesions noted during the passage of the barium.

Following the screen examination, films are made with the colon filled in both prone and supine positions. In the latter position, the overlapping coils of a redundant sigmoid are frequently shown more separately, but the loop of colon which passes over the inlet of the pelvic may appear as incompletely filled, while in the prone position, filling will be complete.

In radiographs of a very large patient, the use of two 14″x17″ films transversely placed is advisable.

Additional oblique views are sometimes indicated in order to show redundant coils of the colon separately.

Right Oblique

The patient is placed prone, the left side raised to an angle of approximately 30° to the horizontal, and supported by folded sheets or sandbags. In this position, the transverse and ascending colon will be shown separately.

Left Oblique

The right hip is raised to an angle of approximately 30° to the horizontal and supported by folded sheets or sandbags. This view will show clearly the splenic flexure, and the separation of the transverse and descending colon, and will also tend to separate the coils of the sigmoid.

Following evacuation of the enema, films are made to show the mucosal pattern, indication of obstruction, or possible presence of diverticulae. If the presence of diverticulae proves questionable, further films may be made in 24 hours.

If the radiologist wishes to demonstrate the possible presence of or ulcerative lesion of certain portions of the bowel, this may be done by means of an air insufflation.

The insufflator consists of a rubber tube, 36″ long, with a connector to fit the enema tip, and a pressure clip attached to control the passage of air. At the distal end of this tube, a 4″ rubber bladder is attached, with a syringe for the introduction of air. Following evacuation of the barium enema, sufficient air is introduced into the rectum under fluoroscope to outline the bowel.

Stereoscopic films are then made. This method is not routine, but is only resorted to when other means have not disclosed the condition of the large intestine.

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Spring Fever

By VERNA M. THOMPSON
Winnipeg, Man.

Spring is just around the corner, if the calendar is to be trusted. And Spring, while it turns young men's fancies to thoughts entirely different, turns those of a good housewife to housecleaning. The infection spreads and lo and behold, we find it sneaking into the x-ray department.

There's that drawerful of assorted odds and ends which, to plagiarize Fibber, you intend to get around to cleaning up some day. You know the one which is so full of stuff that you have hurriedly tucked away to get out of sight, that when you want to find something in it, you spend most of the day digging. Well, why not do the job right and get it over with.

Then there are those spots of splashed barium on the table and equipment. They really never show except when ALL the lights are on. But get busy and cleam them off. And while you're at it, why not put a good coat of wax on all the painted surfaces? Provided, of course, that your ambition is that great and your arms hold out.

You might as well wander into the darkroom, too, and clean those white marks that indicate spilled fixer. And check over your hangers to make sure that the clips really clip. You can't get any new ones unless you have a special dispensation of providence or there are places that repair them.

While you're at it, why not clean your cassettes, inside and out? A damp cloth with a little soap will work wonders on the outside and a piece of absorbent cotton and mild soapsuds will clean the screen—but don't rub too hard. Handle them gently.

By now you will have been infected by the housecleaning bug. You can go merrily on indefinitely; rewarded by the gleam on the equipment and the glow of righteous self-satisfaction in your heart.

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Newfoundland Flash

Early in April the Senior x-ray Technicians of all the City Hospitals in St. John's gathered to discuss the formation of a Newfoundland Society. It was a most enthusiastic meeting and as a result a committee was nominated to draft rules and regulations after surveying those of Canadian and American Radiographic Societies. At this time it is not possible to say a great deal beyond the fact that at the next meeting we hope to see the Society officially launched, its first panel of officers elected, its rules and regulations adopted and a tentative programme mapped out.

W. J. PAYNE.

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Have you ever tried fluoroscoping coal to see its ash content? The carbon is transradiant but the foreign matter is relatively opaque.

Arthrography of the Knee

By SERGT. G. C. HIGGINSON
Canadian Army Overseas
(Member Ontario Society of Radiographers)

Among the more common injuries found in army hospitals are those involving the knee joint. This is due mainly to the violent strains the men incur in their training exercises and on manoeuvres.

Since knee injuries are not all to the bone but more often to the soft tissues in and around the joint, it becomes a necessity in the x-ray department to do more than the usual A.P. and lateral studies and to concentrate more on producing a film which will demonstrate soft tissue pathology and which will aid the surgeon by radiographically demonstrating his clinical findings.

Our attempt to fulfil this need does not originate with this department, several useful articles having been written on the subject previously, but we believe that we have had enough success by our method to make our technical modifications known. We are especially grateful to the x-ray department of a Royal Air Force hospital, Flight-Sergeant Wood, Radiographer, and to Flight-Lieutenant Sommerville, orthopedic-surgeon, for a valuable demonstration of their method from which we derived several suggestions.

The success of the examination depends on an old radiographic standby —the use of a contrast medium (in this case, a gas) to outline neighbouring structures of the same density and to delineate certain flaws or pathological changes in soft tissue structures. It is especially valuable in determining tears or other injuries to the menisci, or semi-lunar cartilages, and it is in this connection that this article is written.

Before going on with the radiographic technique it may pay to discuss sketchily some of the anatomical structures of the knee joint and their relationship to one another.

Anatomy

The knee joint is enclosed in a capsule. At the two sides of the joint are attached the Lateral and Medial Collateral Ligaments, two of the main supports. The proximal ends of each are attached to the femur. The distal end of the medial collateral ligament is attached to the tibia whereas that of the lateral is attached to the fibula.

Between the outer borders of the medial condyles of the tibia and femur is the Medial Meniscus (Medial Semilunar Cartilage). It is shaped like a half moon. The two tips are termed "horns".

In a similar position between the condyles of the tibia and femur laterally is the Lateral Meniscus (Lateral Semilunar Cartilage). It is more nearly circular in shape with the horns coming closer together than those of the medial meniscus.

Both menisci are thick at their outside borders and thin toward their central borders. Due to its shape and attachments the medial meniscus is apt to become injured more often than the

lateral. One of the more common types of injury to the medial meniscus is the so-called "bucket-handle" tear in which the cartilage is torn longitudinally. The severe strains which injure the menisci are often of the same type which injure the collateral ligaments. It is worthy of note that the outside border of the medial meniscus is adherent to the medial collateral ligament but that the lateral meniscus is separated from the lateral collateral ligament by the popliteus tendon.

If an A.P. radiograph of the knee is examined, it will be seen that the joint spacing can be considered for practical purposes as divided into two compartments, one lateral, one medial, separated from one another by the tibial spines. In the radiographic procedure we x-ray each compartment separately. On studying a radiograph of the knee from the lateral projection it will be noticed that the articular surface of the tibia is not at right angles to the longitudinal axis of the bone but slopes down and back at an angle approximately five degrees off the right angle. If, in centering the x-ray tube to the joint space, the central ray is directed at right angles to the longitudinal axis of the tibia, overlapping of the tibial and femoral condyles will occur.

Technique

Since an article on radiographic technique may not deal with surgical procedure, the method of preparing the patient for x-ray will be dealt with here only as a matter of interest to the technician and insofar as it is a matter of direct concern to him.

After a prep is done on the knee and surrounding area the surgeon aspirates all the fluid from the joint. He replaces this fluid with oxygen. From eighty to one hundred and twenty cubic centimeters are used. Oxygen is preferable to air or other gases as it absorbs rapidly. It is important that enough is put in to fill the capsule and also that all the fluid is withdrawn, as a little fluid can spoil the whole examination by displacing the gas from the injured area.

It is the tendency of the gas to stay outside the actual articulating surfaces so that to force it in, a bandage of touniquet tightness is wound about the leg just above the joint. The bandage is applied, starting just above the upper limits of the capsule and working downward, stopping just above the level of the joint margin. Since the bandage is so tightly applied it is important to do the radiography immediately in order to prevent undue stasis of circulation. If necessary the bandage may be left off for a short time, not exceeding a few hours, and replaced for more films. It has been our experience that the gas absorbs rapidly and is replaced by fluid so that in a matter of several hours it is impossible to get enough of the remaining oxygen into the joint space to produce a satisfactory examination.

The patient is placed prone on the x-ray table so that the films may be taken in the P.A. position. The knee is bent slightly for two reasons; firstly, so that the collateral ligaments will be relaxed and will thus allow forcible abduction and adduction to open the joint space to better advantage; secondly, so that centering through the joint is made easier. It was mentioned earlier in the article that the articular

surface of the tibia inclines downward and backward about five degrees off the right angle formed with the longitudinal axis of the tibia. This articular surface will be approximately at right angles to the table top if the lower leg is put into such a position that the knee is touching the table top and the tip of the external malleolus of the ankle is about six inches above it. This is a normal position and one which the patient will probably adopt himself from the moment he is placed on the table.

By fluoroscopic means the exact level of the knee joint may be marked on the skin posteriorly. By centering through this line with the central ray at right angles to the table top (or, in other words, parallel to the tibial articular surface) a good, clear joint space should be visualized on the radiograph.

Each compartment of the knee is x-rayed separately. Forcible adduction is applied to the knee when the lateral compartment is being x-rayed and abduction when the medial is being centred on. This opens up the joint space so that a better examination may be had.

A small area cone is used to cone down on each compartment for the sake of eliminating secondary radiation and for obtaining optimum contact. A long cone projecting a clear-cut shadow less than four inches in diameter at twenty-two inches is ideal.

Each compartment of the joint is x-rayed in three positions:

1. P.A.-oblique with sixty degrees internal rotation.
2. True P.A.
3. P.A.-oblique with sixty degrees external rotation.

The first position shows to best advantage injuries to the anterior horn of the medial meniscus, and to the posterior horn of the lateral meniscus. The second position shows mainly the middle section of each meniscus while the last shows the posterior horn of the medial and the anterior horn of the lateral.

Since it is sometimes difficult to tell which is internal and which is external rotation when a small cone is used, we have been marking each radiograph with the identification "L1, L2, L3" and "M1, M2, M3" to indicate the six lateral and medial menisci projections.

We have been accustomed to using regular film with screens rather than non-screen film as we find better results are obtained both in radiographic and in diagnostic value. We over-expose slightly and compensate for that by under-development. Thus, no area is burned out completely but penetration and exposure is sufficient over the entire area to produce a first rate diagnostic film.

The technical factors are:

P.A. thickness of part—12 cm.
Penetration—55 Kv.P.
Time—0.3 secs.
Current—30 Ma.
Distance—22 inches.
Development time—3½ minutes at 65 degrees in Eastman X-Ray Developer.
Non Bucky technique.
Screens with regular film.

As supplementary films for additional information, a lateral with full flexion, and a P.A. with the tibia at an angle of from forty-five to sixty degrees with the table top (knee flexed), are taken. In the latter view the tube is angled to go through the joint space

and shows the intercondyloid notch of the femur. Both views are taken from a greater distance and with a larger cone to include the whole knee and at normal knee technique.

It has been our custom here to take the three P.A. views of the medial compartment and the three of the lateral compartment all on the one film, size 10 x 12 inches, by dividing it into six equal parts with leaded rubber strips. Thus the whole examination with the exception of the two supplementary views may be studied side by side from the one film.

In the accompanying illustration may be seen the radiograph of a torn medial meniscus from the true P.A. position. It is quite definitely outlined and the tear may be easily seen. The M1 and M3 positions, not reproduced here, show the tear to extend through to both horns of the meniscus. As a matter of interest, the diagnosis made by Captain Paul Hauch, Radiologist, from the films reads as follows:

"There is an extensive bucket-handle tear involving the medial meniscus extending almost to the anterior horn and involving the posterior horn".

The photograph of this identical meniscus is shown here after removal from the knee. The tear is clearly demonstrated. This particular examination was the first one in which the described technique was employed, the comparative clarity of the joint structure being so striking that all previous techniques were discarded in favour of the new one, which has turned out to be less time consuming and less difficult than any other method tried.

REFERENCE: Beesly & Johnston's Manual of Surgical Anatomy.

Tennis Ball Technique of Intravenous Pyelograms

By MAJOR RALPH L. SMITH
District Consultant Radiologist
M.D. No. 6, Nova Scotia

As you probably know, we do hundreds of Intravenous Pyelograms in the army. These are done for a variety of reasons, i.e.:

(1) To determine the size and shape of the kidney pelvis and calyces.

(2) The secretion of the kidneys.

(3) To determine if densities seen in a flat plate of the K.U.B. tract are renal or ureteral calculi.

(4) To exclude pathology in the K.U.B. tract.

We have found that the results obtained at our hospital, by ordinary intravenous pyelograms were poor—that is, we obtained poor filling of the pelves and calyces and ureters with the end result that often cystoscopic examinations and retrograde pyelograms were found necessary. These examinations require the services of a genito- urinary specialist, not to mention the distress it causes the patient.

For the past year and a half we have adopted what we call the "tennis-ball" technique for doing intravenous pyelograms.

The technique is as follows:

Two tennis balls are placed side by side, separated by a small circular pad of felt, one inch thick. The balls are then strapped together securely with strips of adheseive tape.

The patient is then placed on the X-ray table, the head of which has been lowered about 5°, the object of this being to further aid the dye in remaining in the pelvis and calyces of the kidney. The tennis balls are then placed on the abdomen over the promontory of the sacrum, using as a guide a line drawn between the anterior superior spines. Next the abdominal compression band is placed over the tennis balls and tightened. By so doing, the ball on each side will compress the ureter as it passes over the promontory of the sacrum and prevent the flow of the dye into the bladder. To obtain this result the compression band must be made very tight. This will cause the patient slight distress at first but this gradually passes off.

This compression causes slight back pressure to be exerted on the ureters, thus giving excellent outline of pelves, calyces and ureters with the dye.

When the compression band is adjusted, the dye (diodrast) is injected intravenously. At our hospital, we have obtained the best results by using the following technique:

Two or three ccs. of the dye are injected slowly into the vein. Then after

Speech delivered to Inter-Service Refresher Course, 1943, Halifax, N.S.

a pause of 1 minute, the remainder is slowly introduced into the vein, the whole injection taking about five minutes. This will usually eliminate the nausea and vomiting which sometimes follows too rapid injection of the dye.

Following the injection of the dye, films are taken at regular intervals for 30 minutes. The compression band is then released, the head of the table elevated 15° and further films immediately taken. These will outline the lower portion of the ureters and bladder, show the contractility of the pelves of the kidneys and the tone of the ureters.

To sum up: What are the advantages of this method?

(1) You obtain good filling of the pelves, calyces and ureters.

(2) One noted urologist told me that in his opinion, it eliminated about 50% of diagnostic cystoscopic examinations and retrograde pyelograms.

(3) You outline parts of the kidney which would not show up under ordinary intravenous pyelogram methods.

We have had two good examples of this recently.

A. A patient with tuberculous kidney.

Under ordinary methods, an abscess cavity which was present, did not show up. Using the "tennis-ball" technique, the abscess cavity was clearly outlined.

B. A patient with ruptured kidney.

"Tennis-ball" technique showed a tear in the kidney, extending from the inferior calyx to the cortex of the kidney, which other methods had failed to demonstrate. Further intravenous pyelograms taken over a period of two months showed the tear gradually healing in.

What are the disadvantages of this method?

Frankly, we have found none, in a series of over two hundred cases in which this method has been used.

Some Radiologists claim that the compression of the ureters as they pass over the promontory of the sacrum causes reflex spasm and consequent failure of the kidneys to function. This has not been our experience.

They also state that this method dilates and distorts the kidney pelvis and calyces.

It is true that the compression does dilate the pelvis a little. However, films taken following removal of the tennis balls shows the contractility of the pelvis of the kidney and its normal size, which is the important point, from a urological standpoint.

So, in conclusion, I would say that if you want to save many routine cystoscopic examinations and retrograde pyelograms, use the "tennis-ball" technique for intravenous pyelograms.

The Sterno-Clavicular Joint

By A. PERRY
Halifax, N.S.

It is my firm conviction that to become a successful X-ray technician, it is essential that one should have more than the average knowledge of anatomy.

I will deal first with the anatomy of the Sterno-Clavicular Joint or articulation.

The sterno-clavicular articulation is a double arthroidial joint. The parts entering into its formation are, the sternal end of the clavicle, the upper and lateral part of the manubrium sterni, and the cartilage of the first rib.

The articular surface of the clavicle is much larger than that of the sternum, and is invested with a layer of cartilage which is considerably thicker than that on the latter bone. The clavicle is a long curved bone and is situated nearly horizontally at the upper and anterior part of the thorax, immediately above the first rib. It articulates medially with the manubrium sterni, and laterally with the acromion of the scapula. It presents a double curvature; the convexity being directed forward at the sternal end, and the concavity at the scapular end.

The sternal extremity of the clavicle is triangular in form and directed medialward, and slightly downward and forward. It presents an articular facet, concave from before backwards, and convex from above downwards, which articulates with the manubrium sterni through the intervention of an articular disc. The lower part of the facet is continued on the inferior surface of the bone as a small semi-oval area for articulation with the cartilage of the first rib.

Sternum

The Sternum is an elongated flattened bone, forming the middle portion of the anterior wall of the thorax. It derives its nomenclature from the Roman word "Sternum," meaning sword, so called on account of its likeness in shape to a sword. The three parts of the sternum, namely, Manubrium, Gladiolus and Ensiform, are compared to the three parts of a sword, namely, the handle, body and tip of the sword. Its upper end supports the clavicles, and its margins articulate with the cartilage of the first seven pairs of ribs. It is the upper part, or first part that we are at this moment concerned with, viz., the manubrium or handle.

The manubrium is of a somewhat quadrangular form, broad and thick above, and narrow below at its junction with the body. Its anterior surface is smooth, convex from side to side, and concave from above downwards. The superior border is the thicker, and presents at its centre the pre-sternal notch. On either side of the notch is an oval articular surface, directed upward, backward and laterally for articulation with the sternal end of the clavicle.

This will give us an idea of the anatomy going to make up the sterno-clavicular joint. We will now proceed with technics for obtaining radiographs of the same.

Direct P.A. Position

(1) Patient is placed on the X-ray table in the prone position, chin extended forward, arms by sides with palms uppermost. We then centre the tube to the level of the 4th thoracic vertebra. Anode film distance, 15″ to 20″, allowing 4″ to 5″ between tube and skin surface. This short distance permits a relatively unobscured view of both articulations. You will see some magnification of the joints, but those of the thoracic vertebra are differentiated as the result of still greater magnification. The short anode-film distance is recommended only when working with a shock-proof machine.

P.A. Position (tube angled)

(2) The patient is placed in the same position. Centre tube over the shoulder of the affected side, and tube angled 18° toward the spine at the level of the 4th thoracic vertebra. Both sides should be taken.

It must, of course, be remembered the the Bucky cannot be used with this tube-angled position unless special preparations are made to lay the patient across the table instead of longitudinally. This can be accomplished by pulling up another table or stretcher of the same height at right-angles to the Bucky table.

P.A. Position (trunk angled)

(3) Patient is placed on table in prone position and then rotated to an angle of 45°, so that from the tube position the spine and sternum are separated. This allows the clavicle and sterno-clavicular joint of the side being examined to be parallel to the film, with the spine rotated to overshadow the mid-third of the same side. Centre at the level of the 4th thoracic vertebra, and 4″ from the mid-line. Both sides should be radiographed.

By exposing both sides each film shows the projection of both joints to one side of the spine. The joint nearest the spine is shown satisfactorily, but the joint furthest is shortened and distorted.

Lateral

(4) The patient is placed in a true lateral position, with the shoulders and arms well back. Centre through the sterno-clavicular joint.

Be Kind to Patients

With apologies to all poets, living or dead.

If your patient seems to fret,
Flatter her.
Just tell her she's a pet,
Flatter her.
If she drives you to despair,
And you want to tear your hair,
Hand her out the old hot air,
Flatter her.

If your patient seems unruly,
Mother him.
If he worries you unduly,
Mother him.
If he fills the place with moans,
And besets your ears with groans,
When you try to find his bones,
SMOTHER HIM!

W. Q. S.

Photography plus Radiography—Fluorography

By N. NELSON
Photo Ambulatory Unit, Calgary, Alberta

Every man likes to discuss his favorite hobby. Mine is photography. It has really become more than just a mere hobby. In recent years photography and radiography have become more closely related, owing to the now popular practice of photographing the fluorescent image.

In normal X-ray (radiography) the x-rays or Roentgen rays pass through the object being examined and strike the special x-ray photographic emulsion directly. Fluorography, on the other hand, uses a regular camera to record the visible image of the x-ray as it is seen on a fluorescent viewing screen. Incidentally, Fluorography has also been known by such names as: Indirect Radiography, Fluoroscopic Screen Photography and today is frequently called Photo-roentgenography. With Fluorography, use of film 4x5 inches or 35mm film is possible; whereas in regular x-ray where no optical system is used, the film has to be as close to the object as possible thus always making the film life size or slightly larger, depending on the focal film distance.

The large radiograms are no doubt the best for minute diagnosis in hospitals, clinics, etc. Fluorograms, however,are by far the better for mass pulmonary examinations. It is not only the cost of film which plays a big role in mass surveys, but the speed and cost of the developing. By using a four gallon size tank which would hold two or possibly three 14x17 films; 32 4x5 inch films can be developed at once and by the use of Kodalk Replenisher, 1,000 films can be processed before changing solutions.

For those who may not be acquainted with the Photo-roentgen machines, I will endeavor to give a simple description of the procedure: The object (a patient for instance) is between the Roentgen ray tube and the fluorescent screen as in ordinary fluoroscopy. The distance from the anode to the screen is usually 36 or 40 inches. The Fluorescent screen is mounted on a light tight or light proof box and can be either the regular viewing screen or a special screen such as the Patterson Photo-roentgen screen. At the opposite end of the light proof box or tunnel is mounted the camera which photographs the image from the screen as I have already mentioned. I might add here, that there are no shutters on the camera in this set-up due to the fact that there is no possible light entering it other than that of the fluorescent screen when in operation. It will be of interest to know that a lead-glass is necessitated in front of the screen, i.e., between the camera and screen, to absorb any of the direct Roentgen rays which would tend to fog the film. To further prevent fogging and also as a

means of increasing detail and contrast, a special stationary grid is in use with no visible grid lines on the film. So definite is the improvement of the film that it has been decided by radiologists to use the grid at all times despite the difference in Kvp., which is about 10 additional Kvp. or its equivalent in time. A very high speed lens is used with the camera, such as a speed of f1.5.

The film supplied for this type of work is not an x-ray film, but a single-coated, anti-halo, high-speed photographic film. The film holders for our particular machine will accommodate two 4 x 10 films, i.e., one 4 x 10 on each side, thus making it possible to take two stereos or four single chests before changing film holders.

Means of permanently marking the film caused us some concern and various suggestions were made. There are slots with holders placed at the two top corners of the screen for the purpose of placing name and date plates to be photographed on the film. However, our obstacle seemed to be to get something that would show up satisfactorily on the film and one that could be changed rapidly for each new patient. We did, however, hit on an idea that has proved successful and is, I believe, a new idea.

By the washing of old films and cutting them to the size suitable for name plate, we find that by writing on them with a grease pencil is as effective as lead letters when photographed. The pleasant thing about using pieces of old film is that they can be used over and over again, the writing on them being readily removed with a dry piece of gauze.

The machine I have referred to principally in this article is that of a Photo-Ambulatory X-ray unit mounted in a trailer and was purchased by the Alberta Tuberculosis Association, through the sale of Christmas seals. It was presented to the Alberta government in August of 1943.

At the beginning of September it did its first field work when the employees of the G.W.G. factory at Edmonton were x-rayed. From then on, the staffs of the larger business places, and the students of the University were x-rayed. The Unit was then moved to several different cities and towns in southern Alberta so that the people who had bought Christmas seals might not only see the machine but have their x-rays taken if they so wished.

To date, over 16,000 people have been x-rayed. With spring now just around the corner, and after completing a survey now under way in Calgary, we hope to be on the road again, and look forward to a busy and successful summer.

So much for Photo-roentgenography, leaving a few lines for my favourite hobby: ordinary photography.

Through plain Still Life Photography, much enjoyment can be had with the inexpensive box camera and much of the fundamentals of photography can be learned from this simple gadget.

So before deciding on buying a shiny new creation in chrome, equipped with a superb lens and a lot of delightful gadgets, ask yourself whether or not

you have a discerning eye. Do you really enjoy seeing and framing pictures mentally? Conversely, most interesting photographs are the result of seeing. Seeing that is full of appreciation and understanding. The function of your camera is to transform something you have seen into a picture which you and all who see it may enjoy again and again.

For a picture to be any good at all, it has to make some sort of sense, tell some sort of story. In short, remember that your camera is, no matter how deluxe or how perfect, a moron. If what it produces is to make sense, you have to provide that sense. Your photographs, if they turn out to be pictures, reflect your attitude toward the world and everything in it. They reveal your way of looking at things. They show what you enjoy and appreciate.

A box camera, one may say, is a model "T" of photography. For people that do not take up photography as a study and for beginners, box cameras are successful because they eliminate most of the chances of making mistakes. They are a fixed focus and have but one shutter speed. A speed of somewhere between 1/20 and 1/30 of a second. This speed is a good average snapshot speed, adequate for most casual picture making. The lens aperture is small enough to provide reasonably good definition from infinity to within 8 or 10 feet of the camera. Too, the aperture (usually about f12 or f13) balances nicely with the shutter speed to produce a properly exposed negative under ordinary outdoor conditions and with films of average sensitivity such as: Kodak Verichrome film, Agfa Plenachrome, and numerous others. If it is desired to take a roll of film at a picnic later in the day, good results can be had by using high speed Panchromatic film. This would compare to using a camera with an f 5.6 aperture.

While speaking of aperture and the "f" system, let us be reminded that the "f" number indicates the dimensional relationship of the diameter of the lens (stop or aperture) to its distance from the film when focused at infinity. To put it another way, the "f" number or relative aperture =

$$\frac{\text{f (focal length)}}{\text{d (diameter)}}$$

A 1-inch diameter lens (stop), one inch from the film when focused at infinity would be f 1. The same opening at two inches from the film would be f 2 and so on. The diameter of any lens (stop or aperture) divided into the lens-film focal length furnishes the "f" number. The lower the "f" number the greater is the diameter of the lens and vice versa. The area of the lens decreases rapidly with increase of the numerical value of the "f" number. The speed of a lens varies inversely as the square of the "f" value (or the stop value). For example: By squaring any two "f" numbers and dividing one into the other, one obtains a measure of their relative speeds. A 1-inch diameter squared is 1. A ½-inch (.5) stop squared is ¼ square inches or (.25). Thus at the same focal length, the 1-inch diameter lens is 4 times faster than the ½-inch lens.

Another example: $8 \times 8 = 64$; $16 \times 16 = 256$; $256 \div 64 = 4$. Therefore with f.16 the exposure is four times that necessary with f.8. The question as to what stop should be used is governed by the circumstances and the purpose for which the photograph is taken.

If, for instance, you were taking a lake scene with mountains for background, and you also desire making an interesting foreground by having children playing some 8 or 10 feet from the camera, perhaps there are some trees growing on the lake shore; you can then frame the scene, catching some of the trees.

Use a very small stop and everything will be well in focus. By using a fast panchromatic film you can still use a reasonably fast shutter speed.

If now, you desire photographing a beautiful girl on the scene; use a large stop, focus accurately, (she being the objective) and everything from a few feet behind will be so blurred, making the individual really stand out, so that no one can reasonably say, "I certainly like the background".

Darkroom Do's and Don'ts

By WM. DOERN.
Winnipeg General Hospital

Don't stoop in a dark room. You'll never bump your face on a bench or high stool if you squat rather than stoop when groping around to find something you've dropped on the darkroom floor.

Save your face and save your glasses. When moving around the darkroom, always raise one arm to shoulder level, elbow flexed at 90 degrees horizontally, in front of you. Then if you do bump into an open door or any other comparatively immovable object, you won't break your glasses, or black your eye. All the damage will be to the arm which can't be hurt as much and heals quicker.

Have you ever struggled through difficulties in getting a radiograph and found after the patient was back on the stretcher that you had no cassette in place? Avoid this by making and always applying the hard-and-fast rule of removing the cassette before you remove the patient.

Do you play Gestapo in your department? When you're terribly busy and a patient comes in for a gastric, you get the necessary particulars, open the fluoroscopic room door, wheel the patient in, rush him in the semi darkness to the fluoroscope, hand him a glass and order, "Drink this, please". By this time a nervous patient is so nervous, he couldn't swallow even something palatable. It pays in time saved and in repeat business to take time to tell the patient what it's all about. He can then co-operate with you. This will save you time and, what's more, he will like the way you have treated him and come back to you the next time he needs an x-ray.

Practical Hints on Film Economy

By SISTER M. EVARISTUS, Technician
conjointly with
H. R. CORBETT, M.D., Radiologist
St. Joseph's Hospital, Glace Bay, N.S.

Present day conditions are such that every precaution should be taken with regard to the use of X-ray materials in our routine departmental work. With this in mind, a few considerations in the selection of the size and number of films for any particular case is in order.

Extremities

Radiographic examination of the hands and feet should be carried out, taking more views than the ordinary A.P. and lateral. When a fracture or dislocation is well demonstrated in these standard positions, they are sufficient. However, in doubtful cases, oblique views should be included. A film size that will include the bones of the hand and wrist in the A.P. view such as a 6½x8½ or 8x10, depending on size of extremity, is necessary. Two oblique exposures and occasionally a lateral view can be taken with an additional 8x10.

The examination of the long bones, forearm and lower leg should include the joints above and below. Fractures in region of ankle joint are often accompanied by a fracture just below head of fibula. For alignment and consideration of weight-bearing purposes this inclusion is very important, especially on recheck film examination. It is often necessary, therefore, to have A.P. and lateral views taken on a 14x17 film covering one half of the film with lead or lead rubber. With reference to forearm, it must be remembered that a fracture of the ulna near the wrist may be complicated by a radio-ulnar dislocation at elbow therefore 10x12 or 11x14 films to include the entire shaft of both bones are necessary.

Co-operation of the attending physician in stating definitely on his requisition the area to be examined, eliminates film wastage. Requisitions are often sent in or brought in by the patient written "X-ray of leg". In the absence of the radiologist the technician finds it necessary to question the patient as to the site of injury and use her own judgment. In case of doubt, a large "scout" film may have to be taken for localization of the fracture.

Spine

When there is sufficient clinical information present for localization of a spinal lesion such as well defined Potts disease, standard 10x12 films are indicated, provided the requisition states a certain area, i.e., 10th dorsal vertebra to 1st lumbar vertebra inclusive. This requires knowledge of certain anatomical landmarks on the part of the technician. In most instances, however, two 14x17 films are necessary. A few years ago cassette manufacturers supplied long, narrow 7x14 cassettes which were quite advantageous, since the one 14x17 film could be cut in two and used if this special size was not obtainable. The use of these narrow films required very careful posturing.

Gastro-Intestinal Tract

The number of films used in gastric work depends on the wishes of the radiologist. With the present compression spot film devices for serial radiography, several exposures on small films are necessary.

The Rose Table, formerly used in certain clinics, was an ingenious apparatus whereby either four or eight exposures of stomach or duodenum could be made on one 14x17 by means of lead screening controlled by levers.

In gall bladder radiography, visualization of the dye-filled organ is necessary, therefore the area from the liver to the crest of the ileum should be included. Two 8x10 films should adequately cover this region. When the position of the organ is located, one 8x10 will suffice to study the gall bladder drainage.

Skull and Sinus Radiography

For the average patient, four views of the nasal accessory sinuses can be made on a 10x12 film, using a lead sheet with a circular opening approximately 5" in diameter. There will be sufficient unexposed space in the centre for an identification marker, and this can be recorded, using a brief exposure with the remainder of film covered.

Lateral films of the skull may be taken on 8x10 films in some cases. For the frontal and basal views, on account of the projection angle, 10x12 films are recommended.

To summarize, it must be understood that judgment and c o m m o n sense should guide us in the selection of the proper size of films, keeping in mind the utilization of all available space. At the same time, false economy to the detriment of patient and confusion of radiologist should not be practised. It is much better, in case of doubt, to select a larger size of film, rather than miss a lesion by not including the area in field of examination.

Bluff or Not—It Worked!

Pleading not guilty to a charge of stealing $10, counsel told the court that accused was in his Jarvis St. hotel last night. "I was at the cash register when the accused grabbed $10. Before I could get it, he swallowed it," said complainant.

The accused claimed he did not take the $10 and denied swallowing the bill.

"You can x-ray my stomach and if there is a $10 bill there, I will pay for the x-ray," he said.

"Without the picture, there is not sufficient evidence to convict," ruled his worship, dismissing the case.

—Toronto Daily Star, April 6, 1944.

We respectfully submit that there would not have been sufficient evidence even with the picture.

Life in the R.C.A.F. (W.D.)

By CORPORAL ANNE GOODFELLOW
Member Ontario Society of Radiographers
(Publication authorized by Director of Information, R.C.A.F.)

If I were to write a complete article on my life in the R.C.A.F. (W.D.), I am afraid that it would be a book when I finished, so I shall just outline the main routine and mention those things which interest me most. I hope that some other girls who read this will be led to join up because really it is a very different and extremely interesting life. I have never been so happy and contented as I am in the Service. You see, we are not an Auxiliary Service any more. We are an actual part of the Air Force and although we have been criticized and the first recruits had tough going we have shown Canada that we can take it. As for the girls in the R.C.A.F. (W.D.) they are just average, normal girls and some of them are the finest I have ever met.

There are many trades open for girls, Radiography being one. It is an "A" group trade which is the highest of four groupings. I joined up as a Radiographer because I like this work and have had nine years' experience in it. One must hold a certificate of membership in the O.S.R. or its equivalent to be able to join in this trade. I was the only one in our squadron, which was quite a large one. Each trade belongs to different groupings and the girls must try trade tests to get their grouping. I was fortunate enough to get mine automatically, because of my experience. We go up in the ranks if we prove efficient in our work and are good airwomen. What we amount to depends on ourselves and I do think everyone gets a pretty fair chance. We all start as Airwomen 2nd class and it is up to us to work up. The initial steps taken in joining up are of course at the Recruiting Centre. There your application is approved and signed and you are interviewed by the Recruiting Officer. You must show proof of age, education and nationality and if all this is satisfactory you are medically examined. I was passed as A1. The last step at the Recruiting Centre is being sworn in. Then after you have signed the Oath of Allegiance you are posted to a Manning Depot for your Basic Training. Your transportation, of course, is paid and usually a group of girls travel together in charge of one whom the Officer chooses. She is responsible for your documents and for you until you reach the Station where a Corporal is usually waiting to take you by bus to the Depot. Once there life really begins.

Our party arrived in the a.m. in Ottawa and had breakfast. Then the Corporal showed us where our Barracks were. She gave us instructions about making our beds and a few other things. How she remembered everything I'll never know. It is surprising how quickly one adjusts oneself to this life. Each girl is responsible for her own bed, locker and bed space, and must keep them clean and tidy. An Officer makes daily rounds to check on the appearance of the barracks.

The first two days at the Depot are devoted to signing more documents, assigning pay, being photographed and fingerprinted, having dental and medical inspection and inoculations. We

are also equipped with uniforms, etc., as soon as possible, and don't let anyone tell you our uniforms are ill-fitting because they are not. Some of them are even specially made for those who are difficult to fit.

Our lectures begin almost as soon as we arrive. They are mainly to familiarize us with R.C.A.F. rules and instructions, ranks, terms, etc. We have Physical Training and Drill about once a day and two route marches during the four weeks. Our squadron was fortunate enough to attend a "Handing Over" ceremony when the C.O. of the Station was transferred and a new one took his place. We also paraded to the Parade Square and stood at attention for the two minutes' silence on November 11th.

Each day was approximately as follows: Rise at 6.30 a.m., shine shoes and buttons, dress, breakfast and Roll Call at 7.45 a.m. This may seem like fast work but we soon became accustomed to hurrying. We also had to sweep around our beds and make them, and leave our barracks tidy. (Each day a different Airwoman is detailed to sweep the halls, turn off lights, open the windows and empty waste baskets. She did not have to attend Parade that morning). After Roll Call we attended lectures, P.T. or Drill as detailed. Dinner was at 12.00 and Roll Call again at 1.15 p.m., then more routine lectures, etc. We were off at 5.00, could be off the Depot until 10.00 p.m. and had "Lights Out" at 10.30 p.m. Saturday we were off at noon and had 12.00 o'clock passes and we did not report for duty until Monday a.m.

We had a large Recreation Hall for sports, a Canteen, and shows once or twice a week. Church Parade was compulsory. This may seem a hectic life to you, but as I said before one soon adjusts oneself.

At the end of the four weeks Basic Training we tried our exams and graduated. I thoroughly enjoyed Graduation Parade. We had the R.C.A.F. band in attendance and an Air Vice-Marshal inspected us and gave a little speech afterwards. It was most impressive.

Then we were posted to our Stations. I was posted to a Flying Instruction School out West and not having been out of Ontario in Canada I was thrilled to death. The trip here was tiresome but I enjoyed it all. There were quite a few of us so we weren't lonesome.

Although the general routine on the Station is somewhat similar to our Training Depot there is the difference of doing our own line of work and working and eating with male personnel. And no matter what you may have heard they do not seem to resent us. On the contrary, I think the majority are glad to see us come to the Stations.

I was the first Radiographer on this particular Station and I work alone in the x-ray room. As yet there is not a great deal of x-ray work, but I also do Physiotheraphy and Clinical Laboratory work so am kept quite busy. When I arrived the x-ray room was barely finished. In fact, I was permitted to make a few suggestions as to how the Processing Room should be equipped and arranged. Everyone was very obliging about helping me so now we have a nicely laid out x-ray department. The machine is a small unit with a maximum output of 85 KuP and 20 Ma., but it is new and though I have no cones and no compression

band, at least I have a good automatic Bucky and an upright fluoroscopic table as well as one for taking films in the prone position, so I don't complain.

The machine is very compact and neat. By the way, can anyone oblige me with a technique for cartilage of the knee, using Ultra-Speed Film?

My working hours are the same as they were in civilian life and I am "on call". Everyone in the Hospital is really grand to work with and, as I said before, I am happy and contented.

Now just a word about the Station. We have a show every night, good concerts once a week and a Station Dance on Saturday night. Church is optional. We are starting a Glee Club very soon and hope to do some travelling around if we are good enough for public appearances. Everyone has a "48 hour pass" every ten days or two weeks and 12.00 pass every night. We have all kinds of sports including Badminton, Boxing, Basketball, Tennis and Volley Ball. There are two or three Canteens and a large sitting-room for bridge and entertaining, and a games room.

I hope this it what our President meant when he asked me to outline my routine and impressions. It just about covers everything and will give you a fair idea of the life in the R.C.A.F. (W.D.). If you think you will like it from this description, girls, then you will because there are dozens of nice things I'm sure I've forgotten to mention. So join me and let's "Keep 'em Flying".

Book Review

We have just finished reading "The Fundamentals of Health" by the well known nutritional research worker, Dr. Elizabeth Chant Robertson, and were so impressed by it that we feel that we should pass the good word along to our members. While primarily intended for use in High Schools it contains a wealth of information on Physiology and Nutrition which is of great value to all ages and is presented in a very interesting manner.

The book, which is profusely illustrated, is divided into four sections: "How to keep healthy", "Health through the ages", "Community Health", and "Safety". Section I contains 15 chapters and is really an elementary and very readable book on Physiology, the various parts and functions of the body being given chapters to themselves, as also are Diets and Vitamins. Section II sketches the development of health practices in ancient times and their decay in the middle ages, concluding with thirty biographical pages on prominent physisians and scientists of later years, from Harvey to Banting, including the Curies and our own particular high priest, Roentgen. This section in itself is invaluable as a series of easily available thumb-nail portraits of people prominent along the path of health development. Section III is particularly interesting to nurses and public health workers and Section IV is full of ideas for the avoidance of accidents, fire, electrical hazards, pedestrian risks, cycling and motoring, accidents in the home and camping are all dealt with.

If it were not published for educational purposes this book would sell at $2.50 a copy, but at the low price of 95c postpaid it presents an opportunity which we feel you will thank us for having brought to your attention.

—L.J.C.

The Fundamentals of Health, Elizabeth Chant Robertson, M.D., Ph.D. 283 pages. 126 illustrations. The Copp Clark Co. Ltd., 517 Wellington St. W., Toronto. 95 cents postpaid.

Canadian Society of Radiological Technicians

The addresses of the Board of Directors of the Canadian Society of Radiological Technicians as printed within the front pages of The Focal Spot, will readily explain why there are no Board of Directors Meetings to be reported in this issue; unfortunately we are not yet living in the age of owning private helicopters.

Despite this drawback, the work of the Society is being faithfully carried on and steady progress is being made.

The Secretaries of all Member Societies were contacted in January, with a request for new and accurate lists of technicians, in order that fees for 1944 might be correctly appraised. Thus far only three such lists have been received by the Dominion Secretary, and two Member Societies have paid their fees in full.

This delay is, we know, occasioned by the tremendous pressure of work under which we are labouring at present, but to obviate further delays it is necessary to forward Member Society accounts based upon last year's lists, and any correction of these accounts by Provincial Secretaries will be appreciated.

The Associate Directors of our Society have undertaken to conduct a survey of working conditions of x-ray technicians in Canada. Each one is making this survey in his or her own Province. This has been a big undertaking, and it would be greatly to the interests of our members if they would return their replies promptly, thereby supporting our Associate Directors and enabling the Society to complete this survey before the Annual Meeting in September.

This year our first steps have been taken towards obtaining university education for x-ray technicians in Canada. Sixty-two letters have been written to Canadian universities, with a request that a training course of two years at university, with one year's interneship in an x-ray laboratory be arranged if possible. Immediate replies have been received from twenty-four universities, evincing great interest. Five of these state that the respective universities will co-operate with us in arranging such a course at an early date. The remainder are taking it under consideration with the Faculties of Science and Medicine.

It is with great regret that we report the death of Dr. A. D. Irvine, a beloved and valued friend of our Society; also a member of our Examining Board. Dr. E. A. Petrie of New Brunswick has been asked to replace Dr. Irvine upon our Examining Board.

We are most anxious to assist in the organization of a Society of X-Ray Technicians in Newfoundland, where there is a band of expert technicians who desire to organize in the near future. Through the medium of correspondence a plan of arrangement for such an organization is being discussed, and we trust may be upon the agenda of our Annual Meeting in September.

There will be many interesting points upon the agenda of the September meeting, and it is hoped that every loyal x-ray technician will make an effort to attend both his Provincial and Dominion Meetings.

The Manitoba Society of X-Ray Technicians, at their meeting on Feb-

ruary 11th, 1944, passed a motion to the effect that: "Any fully qualified member of any other provincial society, who is employed in the Province of Manitoba, provided that such member is in good standing with his provincial society, with dues paid for the current year, shall be accorded the privilege of membership in this society, and that no further dues shall be paid by such member until such time as the next year's fees become due and payable, when (if such member is still resident in Manitoba), he shall be required to transfer his membership to the Manitoba Society."

Consideration of this point regarding reciprocity of membership between member societies through the medium of the Canadian Society will enable delegates attending the Annual Meeting to represent their respective societies in discussing this subject upon the agenda.

Once more the matter of nominations and election of officers has become necessary. One member of the Board of Directors will be retiring this year, therefore we would remind all member societies to appoint a delegate to the Annual Meeting in September, also make one nomination to the Board of Directors, sending the names of both nominee and delegate to the Dominion Secretary as early as possible. Official notice of the name of the retiring Director will be forwarded to the Provincial Secretaries at an early date.

Uppermost in our minds at present are the plans for our Annual Meeting. Stamp the dates and place indelibly in your notebook:

WINNIPEG

September 16th and 17th, 1944

MARY F. CAMERON,
Secretary Canadian Society of
Radiological Technicians.

News Items from the Provinces

Alberta Society of Radiological Technicians

It was with regret we heard from Edmonton of the death of Dr. Irvine who was on our Examining Board. His passing will be a great loss to the medical profession and especially to our Society. We extend our deepest sympathy to his family.

We hold our regular meeting in Calgary with a good attendance, on the third Monday of the month. During the past few months we have had interesting and instructive lectures from Mr. Pepper of the Canadian Kodak Co. and Major R. M. Hall of the Belcher Hospital.

We hear from the Edmonton Society that Miss A. Harley, Secretary, is leaving for Toronto where she is to be married on April 14. The Alberta Society wish her every happiness for the future and commend her to the tender mercies of our Toronto friends.

Miss J. Dawson has left the staff of the X-Ray Department at the Belcher Hospital and entered the Army as a Nursing Sister. She is at present stationed at Red Deer. She was replaced by Mrs. E. Yerex, who we welcome as a new member of our Society.

L/B.S.A. J. L. Welch was home on leave for Christmas. By way of diversion he got married before returning to

his duties as X-Ray technician at St. John's, Newfoundland. At our annual banquet in December, he was presented by Dr. W. H. McGuffin with a gift from the Calgary Society, as also was Mr. S. M. Matthews, who entered the married status recently. Getting to be quite a habit around here.

While we have not much news from the Edmonton Society, we know they are quite active and there is considerable correspondence passing between the Edmonton Society and the Provincial President.

May we once again remind our members that The Focal Spot is your paper and we depend on you to help us with material. Send your contributions to our Secretary, Miss H. Kamenka.

HELEN KAMENKA
Secretary, Alberta Society.

British Columbia Society of X-Ray Technicians

About twenty members attended a meeting of the society held on March 22nd. It was a wet blustery night which probably accounted for the small turnout. Several items of interest came up for discussion. Considerable gratification was expressed at the progress being made by the Canadian Society. The suggestion that a course in x-ray be offered by Canadian universities met with approval and we all feel that it is a step in the right direction and only hope that it can be carried out. After the business session Mr. Jerry Harvey, local representative of the DuPont Co., showed two very interesting and instructive movies. The first was a film showing the manufacture of x-ray Films and the second revealing some interesting and unusual features about speed photography. Mr. Stirling extended a vote of thanks to Mr. Harvey for his kindness in giving up so much of his time for our entertainment. It is hoped that a much larger number of members will attend the April meeting.

Cpl. J. C. Samchenko, formerly attached to the x-ray Department of Shaughnessy Hospital, has been invalided home from overseas. He is now convalescing in the same hospital and is making satisfactory progress.

Cpl. H. Barclay, also attached to the x-ray Department at Shaughnessy Hospital, is leaving immediately for overseas. He will be followed in about a week's time by Sgt. J. Gibson from the x-ray Department at Little Mountain Camp. The best wishes of all members of the B.C. Society are extended to both.

S/Sgt. A. Irvine, Treasurer, is at present in Shaughnessy Hospital undergoing treatment and is progressing very nicely.

Miss Marjorie Stordy, x-ray Department of Shaughnessy Hospital, is being married on April 22nd to Fl/Lt. Donald A. McLeod. Her many friends throughout British Columbia wish her the very best of everything and happiness in her new career.

W. Q. STIRLING
President, B.C. Society

Manitoba Society of X-Ray Technicians

At the February meeting of the Manitoba Society of X-ray Technicians the Constitution was changed to make the local Society's year coincide with that of the Dominion Society.

New officers were elected.

President: Mr. Wm. Doern.

Vice-President: Miss Orpha McCullagh.

Secretary: Miss Helen Moffat.

The fee was increased to include the cost of the magazine subscription so that automatically every member of the Society will receive a copy of The Focal Spot.

At the March meeting, Dr. A. C. Sinclair gave an excellent and instructive talk on "X-rays in Tuberculosis," adequately illustrated with slides and films. Dr. Sinclair is Superintendent of the St. Boniface Sanitarium, St. Vital, Manitoba, and from his wide experience he was able to pass on to us much that was helpful in chest work.

VERNA THOMPSON
President, Manitoba Society.

New Brunswick Society of X-Ray Technicians

The regular meeting of the New Brunswick Society of X-Ray Technicians was held at the Tuberculosis Hospital, East Saint John, N.B., February 24th, 1944, at eight o'clock.

Owing to conflicting meetings, our speaker, Dr. Lachlan MacPherson, was unable to be present. There was a very small attendance.

Correspondence was read from the Secretary of the Canadian Society of Radiological Technicians regarding vacations and salaries of technicians. Discussion followed. There was also some discussion regarding a crest for our Society, and we are still open for suggestions.

No news has been received from the Northern Section. We are hoping to hear from them soon.

Our next meeting will be held Thursday evening, May 25th, at the Lancaster Military Hospital, West Saint John.

MISS HANDRAHAN
President, N.B. Society.

Saskatchewan Society of X-Ray Technicians

EXAMINING BOARD

DR. A. B. MacDONELL, Saskatoon,
Radiologist, Saskatoon City Hospital
MR. S. G. JOHNSTON, R.T.,
Moose Jaw General Hospital
MR. P. E. HUNT, R.T.,
Saskatoon Sanatorium

The above were appointed by the executive of the Saskatchewan Provincial Society during the month of March, 1944, with the first named as Chairman. At a meeting held in Saskatoon on April 2nd, this Board dealt with the preparation of a curriculum, and it is hoped that the recommendations of the examining board with regard to this matter will be made available to you through this Journal. The members of the Board expect, in the near future, to make several suggestions to the Provincial Executive with regard to the qualifications expected of candidates for examination, and also with regard to the registration of students at the beginning of their training period. Much, however, remains to be accomplished, and it is not expected that examinations will be held in Saskatchewan until October of this year.

Watch for further information.

The Executive Officers of the Saskatchewan Society wish to make the following known to all members and prospective members:—

Inasmuch as The Focal Spot is the official Journal of the Canadian Society of Radiological Technicians, it has been deemed advisable to have the subscription price to this Journal added to the annual fees. Therefore, on and after January 1st, 1944, the annual fees of all types of membership in the Saskatchewan Society will be increased by $1.50.

SIDNEY JOHNSTON
President, Saskatchewan Society.

Nova Scotia Society of Radiographers

HALIFAX BRANCH

An Executive Meeting of the Nova Scotia Society of Radiographers was held at the Halifax Infirmary on January 19th, with full attendance. After the business was disposed with, a paper on the Sterno-Clavicular Joint was delivered by Mr. A. Perry, which was followed by a general discussion.

The February Meeting was held by kind permission of the Mother Superior of the Halifax Infirmary, on the 16th inst., when a full attendance was given a great treat in an informal talk and demonstration of excellent quality films of the sternum, cervical spine and humerus.

The Executive of the above Society met as usual in the Halifax Infirmary on March 15th. The business was quickly disposed of and a full meeting assembled to listen to Mr. Frank Weale talk on the non-screen films, their advantages as he has found them. To emphasize his points he exhibited excellent films of the mandible.

Our Annual General Meeting will be held on May 17th, and Student Members eligible for examinations who are wishing to write will please send their names to the Secretary-Treasurer before that date.

We are pleased to announce that one of our early members, Petty Officer Patrick J. Flynn, has taken unto himself a wife, Betty, daughter of Mr. and Mrs. M. J. Brown of Toronto. The Nova Scotia Society of Radiographers is taking this opportunity of extending to Mr. and Mrs. Flynn greetings and felicitations.

A. PERRY
Halifax, N.S.

CAPE BRETON BRANCH

Meetings are held every other month, with a reasonably good attendance. We usually have a guest speaker for the occasion.

Our September meeting was held at the City of Sydney Hospital, Sydney. Surgeon-Lieutenant Commander Jean Bouchard, R.C.N.C.R., gave an informative address on the activities of x-ray technicians in England. Mr. Hall, of Victor X-Ray Corporation, also was present. He discussed technical problems, and showed films to demonstrate his topic. During the serving of refreshments the members had ample opportunity for social intercourse, of which they availed themselves fully.

The November meeting was held at St. Rita Hospital, Sydney. Mr. Hap. Hollinghum, Maritime Representative of Victor X-Ray Corporation of Canada, was guest speaker. He took up matters pertaining to equipment trouble, and answered questions concerning the availability of x-ray supplies. After the meeting adjourned a delicious lunch was served in the spacious reception room at the new Maternity Annex. The room, panelled in oak, with large French windows facing the harbour, had a set-in fireplace of ship-like design.

In January, our meeting was held at the City of Sydney Hospital, Sydney. After all business matters had been attended to, Surgeon-Lieut. Garten gave a paper on "X-Ray Service in the Navy", which proved not only interesting but instructive to all present. A very tasty lunch was served at the conclusion of the meeting.

SISTER EVARISTUS,
Glace Bay, C.B.

Ontario Society of Radiographers

The Ontario Society had both its Secretary and Treasurer laid up at the same time recently, Miss Lukey sustaining a fractured forearm and Miss Cave having to spend a period in a hospital bed. However, we are glad to report that both are around and active again now.

We hear that Mr. R. L. Sweeny, Chief x-ray Engineer of the Ferranti Electric Co., is off to join the navy and see the world. We shall miss his cheery personality and hope that it will not be long before he is back at his old job again.

We take pleasure in reporting the birth of a seven pound baby boy, John Matthew, to Mr. and Mrs. Katherine Gunether (nee Crackel) late of Chatham and now living at R.R. No. 2, Dashwood, Ont. They should have called him Ray.

Make a point of reserving the dates June 3rd and 4th to attend the Convention and Annual Meeting of the Ontario Society of Radiographers at the Royal York Hotel, Toronto. Luncheon at 12.30 on Saturday. Dinner and entertainment at 7.30. Lecture sessions and meetings both Saturday and Sunday. Don't forget you have a date for Saturday and Sunday, June 3rd and 4th, at the Royal York.

CENTRAL SECTION

The Central Section of the Ontario Society of Radiographers held two very interesting and quite successful meetings during the past three months. The first one, on February 4th, at the Toronto General Hospital, made us look forward to more. We weren't disappointed, for on March 3rd the second meeting was held at the Hospital for Sick Children.

At the Toronto General Hospital we had an attendance of 40, including representatives from Hamilton, Peterborough, Weston and visitors from the General Electric Company, Victor X-Ray Corporation and the Canadian Kodak Company. The meeting was called to order by our Chairman, Mr. W. Whitehouse. Mr. James Seed, of the Canadian Kodak Company, had a number of films to illustrate his talk on dark-room fogging. We were generally agreed that safe-lights should be tested with exposed and not unexposed films.

Mr. J. C. Cooper of the Canadian General Electric Company presented a very interesting talk and film on Electronics. He showed us a number of defense jobs that our little electron does. Then there was the Electron Microscope which magnifies fine hairs to the size of B.C. trees. We were all a little surprised as well to learn that television isn't just around tomorrow's corner.

There was a heavy snowstorm on March 3rd, but in spite of the weather we had 27 at our second meeting. This number included out-of-town guests. Mr. Cartwright, Mr. Hugh Menagh and Miss Rowntree of the staff of the Sick Children's Hospital extended a warm welcome to everyone.

Mr. Cartwright demonstrated the x-ray equipment and illustrated various positions on a small patient. He also had films of some very interesting and unusual cases which led to a general discussion.

Mr. Hugh Menagh conducted us to the operating room where we saw the actual conditions for a Smith-Petersen pin insertion.

J. WALTER,
Sec'y Central Section, O.S.R.

EASTERN SECTION

A meeting of the Eastern Section of the Ontario Society of Radiographers was held at Hotel Dieu Hospital, Kingston, Ont., on February 5th at 3 p.m.

Mr. K. E. Hall of the Victor X-Ray Corporation Ltd. gave a very interesting and instructive lecture on "Radiography of the Skull and Sinuses." Mr. Hall also presented a series of slides in technicolour on the same subject.

In spite of travelling difficulties the meeting was well attended by members from Ottawa, Cornwall, Belleville and Kingston. In view of the fact that there had not been a Chairman named to replace Miss Ola Cummings, I requested Miss G. Wood of Kingston General Hospital to take the chair, which she kindly consented to do. The meeting decided to ask the Brockville members to arrange between the two Hospitals in Brockville to select a chairman and Secretary for the Eastern Section. We are waiting to hear from them.

SISTER GALLAGHER,
Secretary, Eastern Section.

WESTERN SECTION

The Western Section of the Ontario Society of Radiographers met at St. Joseph's Hospital, London, on Saturday evening, February 26th. The speakers were Dr. M. C. Morrison, of London; Mr. H. Thompson, of Sarnia; Mr. Officer from the Ontario Hospital, London, and Mr. Hall, of the General Electric Corporation.

Dr. Morrison gave a very instructive and interesting lecture on Intravenous Pyelography, giving technical advice of value to every radiographer. Several interesting radiographs were shown on the subject. Dr. Morrison also discussed briefly the value of compression bands. Several different styles of bands and resulting films in Gastro-intestinal work were shown. The new gall bladder dye, Priodax, which is not yet on the Canadian market, was also discussed by Dr. Morrison. It appears to be an excellent medium. No patient has any after-effects, nausea, etc., and the radiographs are clearer cut, thus assisting in diagnosis.

Mr. H. Thompson from Sarnia was the next speaker. Mr. Thompson has the knack of making practical gadgets, which assist greatly in radiography. He had brought with him several of these interesting devices, such as lead masks, angling boards, etc.

Mr. Officer then showed some excellent dental films. It was clearly pointed out that, when necessary, dental radiography can be done with higher k.v. and rapid exposure, still maintaining good detail.

An instructive coloured film on skull and sinus radiography was shown by Mr. Hall from the G.E. Corp. All positioning was clearly shown and described. Various views of the anatomy of the skull and how the parts could be shown to the best advantage were discussed.

Members were present from Petrolia, Sarnia, Windsor, Port Albert, St. Thomas and London.

Quebec Society of X-Ray Technicians

On January 22nd, a meeting was held in the Neurological Institute. Diplomas were presented by Dr. Childe to the following technicians who had successfully passed examinations: Sister Helene Marie, Misses Lindsay, Boa, Eggerton and Fisher. Mr. Frank Dreisinger presented a paper entitled "Radiographic Examination of the Acute Accident Case." This paper was illustrated with lantern slides. After a question period the meeting was adjourned.

On March 18th, a business meeting was held at the Sacred Heart Hospital. Nominations for office, and delegate to the forthcoming Dominion meeting were held.

Our examinations for admission as active members will be held on Saturday, April 29th, at St. Jean de Dieu Hospital.

Our annual meeting is to be held on Saturday, May 20th, at the Homeopathic Hospital. We are keenly anticipating a paper by our guest speaker, Mrs. Mary Cameron, of Hamilton, Ontario. Following the technical part of our program, we will adjourn to the Windsor Hotel for dinner and refreshments.

Miss Ena Duclos has left her x-ray duties and has become Mrs. Derry. Our best wishes to Mrs. Derry in her new field. Mr. Dreisinger has been appointed as Sub-Editor succeeding Miss Duclos.

Mrs. Roy, our former Secretary, has taken on duties of motherhood and has recently given birth to a son.

We wish to express our sincere thanks to Mr. Hollingham, Mr. Hammond, Mr. Hall and the Victor X-Ray Corporation for a series of lectures on x-ray technique. At the conclusion the company entertained us royally with food and refreshments. Such evenings are not arranged without considerable planning and at a great sacrifice.

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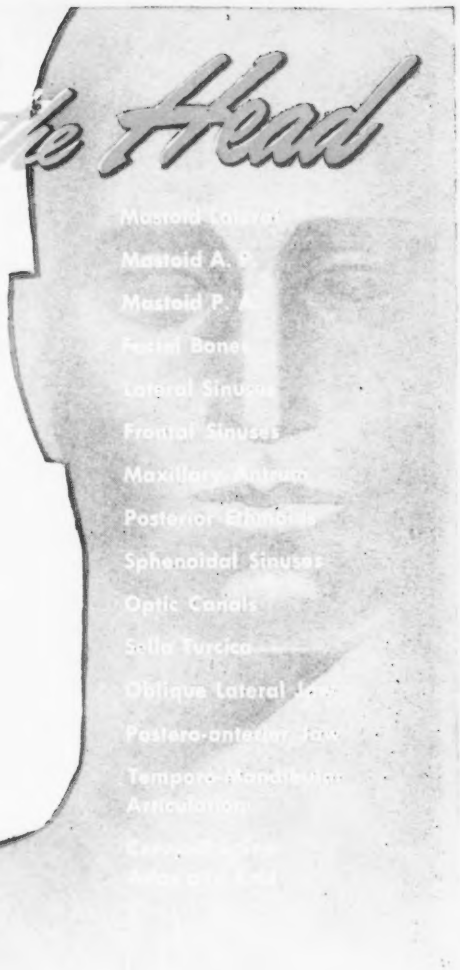

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